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GRAND CANYON NATIONAL PARK ROADS,  
BOULDER STREET HEADWALL No. 1  
Grand Canyon National Park  
Grand Canyon Village  
Coconino County  
Arizona

HAER No. AZ-35-D

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic American Engineering Record  
National Park Service  
Western Region  
Department of the Interior  
San Francisco, California 94107

# HISTORIC AMERICAN ENGINEERING RECORD

## GRAND CANYON NATIONAL PARK ROADS, BOULDER STREET HEADWALL NO. 1 HAER No. AZ-35-D

**Location:** Boulder Street is the east-west residential road which begins at Center Road, two blocks south of Village Loop Drive, and runs west. Boulder Street Headwall No. 1 is located at the northwest corner of the intersection of Center and Boulder, and serves a double culvert which diverts water south to north beneath Boulder Street.

UTM: 12/397620/3990280  
USGS Quad: Grand Canyon, AZ 1988 1:24,000

**Date of Construction:** 1934-35

**Type of Structure:** Culvert headwall

**Use:** Culvert headwall

**Designer/Engineer:** National Park Service

**Builder:** Civilian Conservation Corps

**Owner:** National Park Service

**Significance:** This headwall is representative of rustic style road structures constructed by the Civilian Conservation Corps and other depression-era public works agencies within the western national parks during the period 1933-1942. It is purposely constructed of undressed native sandstone and limestone and rough-mortared to blend with surrounding natural ground features.

**Project Information:** Documentation of Boulder Street Headwall No. 1 is the result of a mitigation study in anticipation of imminent Grand Canyon road work which may bury the structure or require that it be rebuilt. This report was prepared as an NPS Denver Service Center contract assignment in September and December 1993, by Michael F. Anderson, 985 N. Granite Reef #150, Scottsdale, AZ 85257 (602) 423-1602.

## INTRODUCTION

Many of the minor roads and associated structures within Grand Canyon National Park's residential and commercial areas were designed in the 1920s/1930s by NPS and Bureau of Public Roads engineers. These men designed roads to federal highway standards of the time, which considered far fewer and smaller vehicles than travel these routes today. Changing traffic patterns have required new alignments, grades, and roadway widening since the 1930s. Such modifications are now being considered which may result in the burial or dismantling and reconstruction of Boulder Street Headwall No.1 and several other masonry walls along Center Road, Apache Street, Boulder Street, and Village Loop Drive within Grand Canyon Village. This report describes the headwall and documents its construction, modifications, and significance.

## HISTORY OF THE STRUCTURE

One of the first series of projects assigned to crews of the Civilian Conservation Corps involved survey, clearing, grading, and constructing Avenues A, B, and C which all run west from Center Road immediately south of today's Ranger Ops building and serve the Fred Harvey residential area. These roads had been surveyed, cleared, and rough-graded as early as the late 1920s, but the increase in housing thus traffic along these roads in the early 1930s required that they be rebuilt. Research for this study included these projects which began in June 1933 and continued to April 1936, during which time most if not all structures related to these minor roads were completed.<sup>1</sup>

Boulder Street Headwall No. 1 was built between November 1934 and January 1935 as a part of CCC Project No. 506, "Service Roads, Footpaths, Parking Areas at Headquarters," which continued from November 1934 through June 1935. The final construction report for this project indicates that three corrugated metal pipe culverts were installed along Avenue B (Boulder Street) and two culverts installed along Avenue C. A report of landscape architect Harry Langley confirms that the Avenue B headwalls were complete by the end of January 1935, and it is likely they were finished in that month. Photographs accompanying both reports confirm that the headwall and its counterpart on the southwest corner of the intersection were built at this time.<sup>2</sup>

The two photographs, one each of Boulder Street Headwall No. 1 (facing southwest) and its counterpart (facing northwest), were taken as much as two years apart. The later photograph, which appears to have been taken after the road was surfaced and perhaps as late as the report date of December 1936, shows the

8'8"-long boulder which remains today immediately east of the headwall and abutting Center Road. The earlier photograph taken in January or February 1935 does not show the boulder, thus it was placed some time during 1935 or 1936 after crews finished the structure.

The rock for subgrade and surfacing for Project No. 506 was taken from a rock quarry opened specifically for this project "a few hundred feet west of the dump." The uncrushed, subgrade stabilizer rock and finer surface rock were spread the entire length of Avenue B and compacted with a 10-ton steamroller, creating an 18-foot wide roadway which left a small shoulder between the headwalls. Road widening since that time has brought the asphalt up against the top of Boulder Street Headwall No. 1, but left a small buffering shoulder for its counterpart. A small segment of the headwall's eastern end has been reconstructed, as evidenced by cleaner stone which does not quite line up with the remainder of the wall. There is no evidence that the wall has otherwise been modified since construction.

#### DESCRIPTION

The headwall is located along Boulder Street at the northwest corner of the intersection of that street with Center Road. It is approximately 19' long, 4'6" at its highest point, and 2' thick. The top of the wall extends 6" above the roadway surface forming a short curb. The wall is of roughly-cut, quarried, rectangular sandstone and limestone and crudely-mortared. It is in excellent condition with no signs of bulging, buckling, nor cracking. The wall conceals two side-by-side 24" C.M.P. culverts which carry storm water running south to north within the drainage ditch under Boulder Street. This ditch along the west side of Center Road continues down to Apache Street Headwall Nos. 1 and 2 and beyond. An interesting and attractive feature of this headwall is the massive rectangular stone placed above the corrugated metal pipes. Detractive features are the clumsy bit of reconstruction on the east end and the 8' boulder which is beginning to slip down the slope.

The natural landscape surrounding the headwall is much the same as it was in 1935. Old photographs indicate the same grass ground cover with minimal chaparral and a preponderance of ponderosa pines, juniper, and pinyon pines away from the roadway. The nearby built landscape is also similar, that is free of structures other than those associated with the road. Middle 1930s photographs show what appear to be large rectangular street signs on wooden poles, which have since been replaced by the ubiquitous green metal signs on metal poles. The intersection is

today free of homes as it was in the 1930s. Speculatively, traffic may be about the same today as it was in the 1930s: the far greater local traffic perhaps matching tourist numbers from the days when Center was the park entrance road.

#### CONCLUSIONS/SIGNIFICANCE

Boulder Street Headwall No. 1 is significant for its association with the work of the Civilian Conservation Corps within the western national parks. Built during the peak years of CCC activities, it represents a conscious attempt to conform to the tenets of rustic architecture popular at the parks from the 1920s through the 1940s. Built of native sandstone and limestone from local quarries and purposely rough-mortared, the headwall attracts no attention to itself; rather, it complements the landscape while concealing the corrugated metal pipe culvert within.

ENDNOTES

1. Reports which contain fragmentary data and a few identifying photographs of construction of road-related structures associated with these minor roads during these years are found in the first six boxes of Accession #157.04, GCNP Study Collection.

2. C.M. Carrel, Park Engineer, "Final Construction Report on Project No. 506, Service Roads, Footpaths, Parking Areas at Headquarters," report with photographs and sketch map, 2 December 1936, Accession #3594, Grand Canyon National Park Construction Reports, 1926-1954, GCNP Study Collection, GCNP; Harry Langley et al, "Report to the Chief Architect Through Superintendent, Grand Canyon National Park, Month of January, 1935," report, 31 January 1935, and Harry Langley et al, "Report to the Chief Architect Through the Superintendent of Grand Canyon National Park, Month of February, 1935," report with photographs, 28 February 1935, both in E.C.W. (C.C.C.) Documents, Box #5, Folder #1, GCNP Study Collection, GCNP.